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REMARKS

Claims 1-15, 17-39, 42-47, 49-57, 60-66 are pending in the application. Claims 1, 39, 43, 55 and 58 have been amended. Claims 16, 40, 41, 48 and 59 have been cancelled without prejudice or disclaimer. New claims 65 and 66 have been added. No new matter has been added.

Double Patenting Rejection

Claims 1-39, 42-47, 49-58 and 60-64 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-30 of co-owned U.S. Patent 7,088,405.

Applicants respectfully disagree with the rejection for the following reasons.

Amended independent claim 1 is directed to a transfective display device that includes a color transmissive display unit having a viewing side and a back side and defining picture elements and a structured transflector disposed to the backside of the color display unit. *Inter alia*, the structured transflector defines reflecting portions that are perpendicular to the display normal and reflecting portions that are not perpendicular to the display normal. None of the claims of US 7,088,405 include limitations that the structured transflector has portions that are perpendicular to the display normal and reflecting portions that are not perpendicular to the display normal. Accordingly, claim 1, and the claims that depend from claim 1, should not be subject to obviousness-type double-patenting.

Amended independent claim 43 is directed to a transfective display device that has a color transmissive display unit having a viewing side and a back side and a structured transflector disposed to the backside of the color display unit. Ambient light incident on the display unit produces glare light in a glare direction and the structured transflector reflects image light over a range of directions substantially surrounding the glare direction. The invention defined in claims 1-30 of US 7,088,405 does not reflect image light over a range of directions substantially surrounding the glare direction, but reflect image light primarily to one side of the glare direction. Accordingly, claim 43, and the claims that depend from claim 43, should not be subject to obviousness-type double-patenting.

In view of the above, applicants request that the obviousness-type double-patenting rejection be withdrawn.

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Objections to Drawings

The drawings are objected to for failing to show features recited in certain of the claims. Upon examining the objection, it appears to the Applicants that the subject matter objected to is contained in claims 39-41, 58 and 59, and does not appear in claims 30 and 32, as was alleged in the Office Action. Claims 39 and 58 have been amended to cover the partial reflector layer being a multilayer dielectric reflector. It is believed that these amendments to claims 39 and 58 overcome the Examiner's objection to the fact that the drawings do not show the individual layers of the dielectric reflector. Claims 40, 41 and 59 have been canceled. It is believed that the drawings show all features of the invention as claimed, and Applicants respectfully request that this objection be withdrawn.

Objections to Specification

The specification is objected to for failing to provide proper antecedent basis for the claimed subject matter. In particular, it was indicated in the office action that it is required to correct the fact that the specification does disclose the "*structured* dielectric reflector" as recited in the claims. While Applicants do not admit that antecedent basis is lacking, the specification has been amended and Applicants request that this objection be withdrawn.

Claim Objection

The specification is objected to for failing to provide proper antecedent basis for the claimed subject matter. In particular, the Examiner objected to the lack of the phrase "structured dielectric reflector" in the specification. Applicants respectfully disagree with the objection. The section of the CFR recited by the Examiner (37 C.F.R. 1.75(d)(1)) states that "the claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description." Applicants note that there is no requirement for the exact same phrase used in the claims to be present in the specification, merely that a term "must find clear support...so that the meaning of the term in the claim is ascertainable by reference to the description".

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In paragraph [0048] of the publication of the present application it is stated that a “transflector layer 210 comprises a first microstructured layer 212 and a second microstructured layer 214. Between the two microstructured layers 212 and 214 is a partial dielectric reflector 216, that fits to the forms of the microstructured layer 212 and 214”. Furthermore, in paragraph [0052], it is stated that one “example of a layered dielectric reflector 216 is a single layer of a relatively high refractive index material disposed over a lower refractive index structured surface.” In addition, paragraph [0058] contains a description of how to make a structured transflector: “One approach to forming the transflector 206 is to first form one of the microstructured layers 212 and 214 using a suitable technique for forming a microstructured surface. For example, the lower microstructured layer 212 may be formed by using a patterned tool for molding the microstructured layer 212 on the substrate 218. In another approach, the lower microstructured layer 212 may be thermally embossed on the substrate 218. The lower microstructured layer 212 may be made from the same material as the substrate 218, or may be made from a different material from the substrate 218. Once the microstructured surface is formed, the partial reflector 216 is deposited on the microstructured surface”.

Applicants contend that the phrase “structured dielectric reflector” is clear to one of ordinary skill in the art in view of at least these descriptions from the specification, and request that the Examiner withdraw the objection.

Claim 25 is objected to for being a substantial duplicate of claim 55. Claim 55 has been amended to depend from claim 43.

Claim 41 is objected to for being of improper dependent form. Claim 41 has been canceled.

Rejections under 35 U.S.C. § 102(e)

Claims 1, 3-6, 16-19 21, 26, 27-30, 32-34, 39, 42, 43, 45-47, 49-52, 58, 60 and 64 are rejected under 35 U.S.C. § 102(e) as being anticipated by Iijima (U.S. Patent No. 6,870,586). Figs. 3 and 5 are identified in the Office Action as showing the invention. Iijima shows, in FIG. 3 a display panel that has a liquid crystal layer (4) positioned between an upper polarizer (13) and a lower polarizer (21). It is well known to one of ordinary skill that LCDs use absorbing polarizers. The only polarizer (13) above the liquid crystal is referred to simply as a

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polarizer, and so Iijima is understood to use the term "polarizer", when used alone, to mean absorbing polarizer. Elsewhere, Iijima uses the term "reflecting polarizer", which distinguishes a reflecting-type of polarizer from the absorbing-type of polarizer. Thus, the lower polarizer (21) is also an absorbing polarizer.

Iijima teaches a reflecting polarizer (22) disposed between the lower (absorbing) polarizer (21) and the backlight (5). The lower reflective polarization layer (6) is positioned below the liquid crystal layer (4), between the lower electrode (8) and the lower substrate (2).

The lower reflective polarization layer (6) is shown to be not flat and, in the Summary of the Invention, is described as being formed by stacking dielectric interference films having a prism shape that has a triangularly wavy form in cross-section (col. 3, lines 30-32). Iijima also teaches, with reference to FIG. 5, that the reflective polarization layer (44) is what is called a three dimensional photonic crystal layer, which is formed by alternately stacking and forming a plurality of layers (41 and 42) formed of dielectric interference films, upon each other on parallel triangular prism-shaped resinous layers (43) formed on a substrate (40).

To anticipate a claim, the reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628,631, 2 USPQ2d 1051 1053 (Fed. Cir.) 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." Richardson v. Suzuki Motor Co., 868 F. 2d1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Therefore, if a reference does not teach every element of the claim, then the reference does not anticipate the claim (see MPEP § 2131).

Amended independent claim 1, which contains features from canceled claim 16, is directed to a device that has color transmissive display unit having a viewing side and a back side and defining picture elements. A structured translector is disposed to the backside of the color display unit. The structured translector includes a structured dielectric reflector to reflect ambient light that has passed through the color display unit at a reflection angle different from an incident angle. The reflection and incident angles are measured relative to a display normal of the display unit, the structured reflector defining reflecting portions that are perpendicular to the display normal and reflecting portions that are not perpendicular to the display normal.

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Thus, according to claim 1, the structured translector contains both portions that are perpendicular to the display normal and portions that are not perpendicular to the display normal.

In the case of Iijima's device, the reflective polarization layer, the only layer taught by Iijima to have any structure, is taught only to contain the "triangularly wavy form" shown in FIGs. 3-5. The structure may best be described as being ribbed structure, with each rib being formed by two flat surfaces, where the two surfaces (44A, 44B) are disposed at different angles relative to the display normal (the surfaces 44A and 44B are shown in FIG. 5 to be disposed respectively at angles α and β relative to the plane of the display). Accordingly, Iijima's structured reflector fails to include any portions that lie perpendicular to the display normal. Accordingly, Iijima fails to teach all the elements of amended claim 1 and claim 1 is not anticipated by Iijima.

The invention of claim 43 is directed to a device that has a color transmissive display unit having a viewing side and a back side and a structured translector disposed to the backside of the color display unit. The structured translector has a structured substrate having a structured surface and a dielectric partial reflector disposed on the structured surface. Ambient light incident on the display unit produces glare light in a glare direction and the structured translector reflects image light over a range of directions substantially surrounding the glare direction.

The prismatically ribbed reflective polarizer taught in Iijima only reflects image light to either side of the glare peak, since it is composed of surfaces that lie at only two angles relative to the display normal. The invention of claim 43, on the other hand reflects image light over a range of directions substantially surrounding the glare direction. One example of a structured translector that is covered by claim 43 is schematically illustrated in FIG. 13A. The glare peak is shown as ray 1324 while two exemplary rays of the reflected image light are shown as rays 1326 and 1328. Since the structured reflector is scalloped in both the x- and y-directions, the image light is reflected in multiple directions that surround the glare peak.

Accordingly, Iijima fails to teach all the elements of claim 43, and so claim 43 is not anticipated by Iijima.

Dependent claims 3, 4, 15, 20, 21, 24-29, 31 and 33, which depend directly or indirectly from independent claim 1, are also not anticipated by Iijima.

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Rejections under 35 U.S.C. § 103(a)

Claims 20 and 23 are rejected under 35 U.S.C. §103(a) as being unpatentable over Iijima in view of Ralli (U.S. Patent No. 5,926,293). It is stated in the office action that, while Iijima fails to teach a holographic surface, Ralli does teach a holographic surface and that it would have been obvious to combine the teachings of Ralli with Iijima to obtain a brightly illuminated viewing zone. It is further stated that it would have been obvious to employ the planarization layer as an adhesive layer so as to reduce the overall thickness of the display device.

Ralli fails to remedy the deficiencies of Iijima discussed above, with respect to claim 1. Accordingly, the proposed combination of references fails to teach or suggest all the elements of claims 20 and 23, and these claims are patentable.

Furthermore, regarding claim 23, which is directed to the planarization layer being an adhesive layer, Ralli's reflector layer (110) is illustrated as being planar, not microstructured. Ralli's illustrations fail to show any planarization layer.

Claims 25 and 55 are rejected under 35 U.S.C. §103(a) as being unpatentable over Iijima in view of Jang et al. (U.S. Patent No. 6,831,719). It is stated in the office action that Jang is cited for the use of a diffuser disposed between a structured translector and the transmissive display unit, and that it would have been obvious to employ such a diffuser to provide uniform backlighting.

Jang fails to remedy the deficiencies of claims 1 and 43 described above with respect to Iijima. Accordingly, the proposed combination of Iijima and Jang fails to teach all the elements of claims 25 and 55, and these claims are patentable over the cited art.

Claims 40 and 59 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the proposed combination of Iijima and Yamamoto (U.S. Patent No. 4,488,775). These claims have been canceled, so this rejection is moot.

Claims 41 and 48 are rejected as being unpatentable over the proposed combination of Iijima and Wortman et al (U.S. Patent No. 5,771,328). These claims have been canceled, so this rejection is moot.

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Conclusion

In view of the reasons provided above, it is believed that all pending claims are in condition for allowance. Applicants respectfully request favorable reconsideration and early allowance of all pending claims.

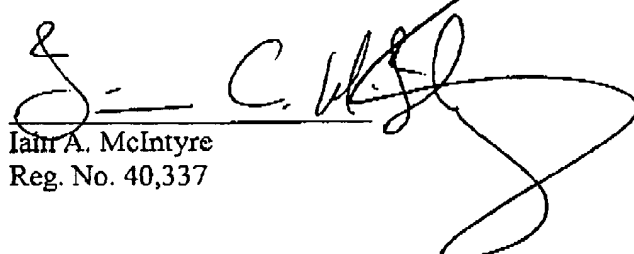
If a telephone conference would be helpful in resolving any issues concerning this communication, please contact the below signed attorney at 612 436 9610.

Respectfully submitted,

On behalf of 3M Innovative Properties Company
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Date: April 2, 2006

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